

Current Affairs search results for tag: science-and-technology

1. Successful training launch of Prithvi-2 at Chandipur, Odisha (Jan. 11, 2023)

Prithvi-2 was successfully trained on 10 January 2023 from the **Integrated Test Range at Chandipur off the Odisha coast**.

An overview of the news

- Prithvi-II is an indigenously developed surface-to-surface **short-range ballistic missile (SRBM)** with a range of approximately 250-350 km. and it can carry one ton payload.
- The **Prithvi-II class** is a single-stage liquid-fueled missile with a payload of 500-1000 kg. has warhead mounting capability.
- The missile system is capable of **hitting targets** with a very high degree of accuracy.
- The state-of-the-art missile uses an **advanced inertial guidance system** with an efficient trajectory to hit its target.
- It was initially developed for the Indian Air Force as the primary user and was later inducted into the Indian Army as well.
- While the missile was first inducted into India's Strategic Forces Command in 2003, it was the first missile developed under the IGMDP.

Five missiles developed under IGMDP

- The **5 missiles (P-A-T-N-A)** developed under this program are:
- **Prithvi**: Short-range surface-to-surface ballistic missile.
- **Agni**: Surface-to-surface medium-range ballistic missile i.e. Agni (1,2,3,4,5).
- **Trishul**: Short-range surface-to-air missile.
- **Nag**: Third generation anti-tank missile.
- **Akash**: Medium-range surface-to-air missile.

2. DRDO develops unmanned vehicle for operations in Himalayan regions (Jan. 11, 2023)

Research and Development Organization (DRDO) has developed an unmanned aerial vehicle with the aim of **targeting logistics operations on the Himalayan border**.

An overview of the news

- This aircraft has been displayed by DRDO at the **108th Indian Science Congress held in Nagpur, Maharashtra.**
- This UAV can fly with a load of **5 to 25 kg.** and is also capable of dropping bombs in enemy territory.
- The aircraft can conduct autonomous missions within a radius of **five kilometres** and automatically return to the origin after delivering the cargo to the designated location.
- This UAV is equipped with **landing accuracy** as well as ground vehicle follow mode and **modular design**, due to which this UAV can prove to be very useful during the war.
- This **multi-copter payload** has been successfully tested by **DRDO at an altitude of 14 thousand feet in Sikkim.** After two more trials, this UAV will be inducted into the Armed Forces.

Defence Research and Development Organization (DRDO)

- It is a premier **defence research and development agency** under the **Ministry of Defence, Government of India.**
- It aims to make India self-reliant in critical defence technology and systems.
- It was established in **1958.**
- Headquarters - **New Delhi**
- Chairman - **Sameer V Kamath**

3. World's first vaccine for honeybees approved for use by United States (Jan. 10, 2023)

The **US Department of Agriculture (USDA)** has approved the **world's first insect vaccine**, which has been developed to protect bees from a devastating bacterial disease.

An overview of the news

- US researchers have developed a vaccine to target a disease called **American foulbrood.**
- The disease is caused by **Paenibacillus larval bacteria** and once it reaches a bee population, it has the potential to completely destroy the colony.
- **Dalil Freitak** of the **University of Helsinki** and his colleagues discovered an important **egg yolk protein** called **vitellogenin.**
- This fundamental discovery laid the groundwork for a new type of insect vaccine, and the team's first target was honey bees.

Effectiveness of vaccine

- The vaccine works by binding to the **vitellogenin protein** in **inactivated bacterial cells** so that when consumed by the **queen bee** it can be transferred directly to her **larvae**.
- This vaccine is given to the queen bees in the form of **royal jelly**. She swallows it, and fragments of the vaccine get deposited in her **ovaries**.
- After exposure to the vaccine, **immunity develops** in the developing larvae.
- A successful clinical trial demonstrated that the vaccine is both **safe and effective**.
- **Progeny** from a vaccinated queen bee are much less likely to contract bacterial disease.

4. All 37 CSIR Labs in India to turn into Global Centers of Research & Innovation (Jan. 7, 2023)

All 37 CSIR Labs in India to turn into Global Centers of Research & Innovation

Union Minister of State (Independent Charge) Science & Technology **Dr. Jitendra Singh** said all **37 CSIR Labs in India** will be turned into **Global Centers of Research and Innovation in their fields of specialisation**.

An overview of the news

- He was speaking at the launch of [**"One Week One Lab"**](#) campaign in New Delhi.
- On this occasion, Dr. Jitendra Singh also released the **logo of CSIR's One Week One Lab campaign**.
- The Council of Scientific and Industrial Research (CSIR) has **37 laboratories** spread across the country dedicated to various specialised areas of work.
- Each of the 37 CSIR laboratories is unique in itself and specialises in diverse areas such as genomes to geology, food to fuels, minerals to materials etc.
- Dr Jitendra Singh inaugurates workshop and exhibition on "**Innovation and Sustainable Construction Materials and Technologies**" organised by CSIR-Central Building Research Institute (CSIR-CBRI), Roorkee with the aim of moving towards Net Zero Emission and Zero Waste.

About CSIR

- CSIR was established on **26 September 1942** and was registered as the CSIR Society under the **Societies Registration Act, 1860**.
- The first meeting of the Governing Body was held on 09 March 1942 in which the bye-laws for the Council were framed.
- It is the largest public funded **R&D organisation** in India.

- Started with 5 laboratories in 1942, CSIR in its journey of eight decades has grown into an organisation consisting of 3521 scientists with 37 laboratories supported by 4162 technical staff.

5. India's '2023 Science Vision' (Jan. 6, 2023)

India's '2023 Science Vision'

Briefing the media about the '**2023 Science Vision**', Union Minister **Dr. Jitendra Singh** said, "The future belongs to those who have innovative ideas and out-of-the-box goals, and the conviction and courage to achieve them." He said this on the occasion of the [Indian Science Congress](#).

108th Indian Science Congress

- The 108th Indian Science Congress is being held on **January 3-7, 2023** at **Rashtrasant Tukadoji Maharaj (RTM) Nagpur University** in Nagpur, Maharashtra.
- Prime Minister **Narendra Modi** virtually inaugurated the Indian Science Congress on January 3.
- He talked about the achievements India has acquired in Science and Tech.
- The theme of this year's Indian Science Congress is "**Science and Technology for Sustainable Development with Women Empowerment.**"

2023 Science Vision

- The development of science, technology and innovation is the only way for **sustainable development**.
- The Prime Minister said in ISC 2023, in 2015 India was ranked **81st in the Global Innovation Index** of 130 countries, but has reached **40th position** in 2022.
- Most of the major S&T companies around the world are being headed by people from India.
- India has been a staunch supporter of promoting scientific temper in daily life. "Science, technology and innovation will define **India@100 in 2047**."

6. The first-ever "National Genome Editing & Training Centre" inaugurated at Mohali (Jan. 6, 2023)

The first-ever "National Genome Editing & Training Centre" inaugurated at Mohali

Union Minister of State for Science and Technology Dr **Jitendra Singh** on 5 January inaugurated “**National Genome Editing and Training Centre (NGETC)**” at **National Agri-food Biotechnology Institute (NABI) Mohali** in Punjab.

An overview of the news

- He also inaugurated the 4-day International Conference on **Food and Nutrition Security 2023**.
- He said that Agri-tech start-ups have a unique potential in India and more awareness is needed to make it successful.

National Genome Editing and Training Centre (NGETC)

- It is equipped with **state-of-the-art facilities** and is a suitable platform for adoption of various **genome editing methods** including **genome modification** and to meet regional needs.
- The center will also help in improving crops in present climate scenarios and making them more tolerant to changing environmental conditions.
- NGETC will cater to the regional needs for adoption of various **genome editing methods**.
- It will also empower young researchers by providing them training and guidance regarding its application in crops.

What is Genome Editing?

- Genome editing, also known as **gene editing**, is a group of different technologies that provide scientists with the ability to alter the **deoxy-ribonucleic acid (DNA)** of an organism.
- These technologies allow genetic material to be added, removed, or changed at particular locations in the **genome**.

7. Hydrogen blended PNG project starts operation at NTPC Kawas ,Gujarat (Jan. 3, 2023)

India's largest power company [NTPC Ltd](#) has commissioned India's first **green hydrogen blending project** at **Kawas**, Gujarat. The piped natural gas (PNG) blended with green hydrogen gas is being supplied through the Gujarat Gas limited piped natural gas (PNG) network in the NTPC Kawas township, Surat.

In April 2022 the NTPC signed an agreement with Gujarat Gas for blending of green hydrogen in the piped natural gas (PNG) to be supplied to the NTPC Kawas Township.

Green Hydrogen refers to the breaking down of the water molecule into hydrogen and oxygen using renewable sources of energy.

The Central government owned NTPC provides the green hydrogen produced at its **1 megawatt (MW) floating solar project of NTPC Kawas** in the Surat district of Gujarat for blending purposes.

Initially, the percentage of hydrogen blending in the PNG shall be around **5% and** after successful completion, it will be increased. The Hydrogen blended PNG will be used for **cooking purposes**.

This is the first project of its kind in the country. This is seen as a first step toward the decarbonization of the cooking sector and self-sufficiency for the energy requirements of the nation.

Gujarat Gas Limited (GGL) is India's largest City Gas Distribution (CGD) Company in terms of sales volume, with operation across 43 districts in 6 states and 1 Union territory in the states of Gujarat, Maharashtra, Rajasthan, Haryana, Punjab and Madhya Pradesh and Union Territory of Dadra & Nagar Haveli.

It is owned by Gujarat government owned Gujarat State Petroleum Corporation.

Headquarters: Ahmedabad, Gujarat.

8. 'SMART' program for Ayurveda professionals launched to regulate and boost R&D in Ayurveda (Jan. 2, 2023)

In order to regulate Ayurvedic medical education and boost the research and development in Ayurveda, the government has launched **'SMART' (Scope for Mainstreaming Ayurveda Research in Teaching Professionals)** program on 2 January 2023.

The SMART program has been jointly launched by the **Indian System of Medicine (NCISM)** and the **Central Council for Research in Ayurvedic Sciences (CCRAS)**. Both the Institutions come under the Union Ministry of Ayush.

The proposed initiative is conceptualized with an objective to identify, support and promote innovative research ideas in healthcare research areas through Ayurveda colleges and hospitals.

The program was launched by **Vaidya Jayant Deopujari**, Chairman, NCISM and **Prof. Rabinarayan Acharya**, Director General, CCRAS in the presence of **Prof. B. S. Prasad**, President of Board of Ayurveda, NCISM and other senior officials.

Every year **23 October** is observed as [Ayurveda Diwas](#) in India.

Union Ministry of AYUSH (Ayurveda, Yoga, Unani, Siddha, Homoeopathy)

- The Ministry of AYUSH was set up on the 9th of November 2014 to revive the knowledge of traditional Indian systems of medicine.
- It focuses on education and research in the fields of Ayurveda, Yoga Naturopathy, Unani, Siddha, and Homoeopathy.
- Minister of AYUSH: **Sarbananda Sonowal**

9. Centre to launch the Digital India Innovation Fund for catalyzing deep tech start-ups (Jan. 2, 2023)

Minister of State for Electronics and IT, Rajeev Chandrasekhar on 30th December 2022 said that the central government is going to launch a Digital India Innovation Fund that will support deep-tech startups.

What is Deeptech?

- Technology that is based on tangible engineering innovation or scientific advances and discoveries are known as Deep tech.
- It is a term used to describe technologically based companies or enterprises that develop innovative solutions and approaches to address major societal challenges such as climate change, food production, chronic diseases, waste recycling and others.
- As for the technologies, deep tech involves the vast utilization of advanced solutions, including Artificial intelligence & Machine learning, Big data, Nanotechnologies, Blockchain, Quantum computing, Robotics etc.

India's Deeptech ecosystem

- India's deep-tech ecosystem has grown by 53% in the last decade and is now at par with developed economies such as the US, China, Israel and Europe.
- From drone delivery and cold chain management to climate action and clean energy, deep-tech start-ups are making their presence felt in all sectors.
- Bengaluru accounts for 25-30% of India's deep-tech start-ups, followed by Delhi-NCR (15-20%) and Mumbai (10-12%).

10. PM to address 108th Indian Science Congress to be held in Nagpur (Jan. 1, 2023)

PM to address 108th Indian Science Congress to be held in Nagpur

Prime Minister Narendra Modi will address the **108th Indian Science Congress (ISC)** on 3rd January, 2023 through video conferencing. The 108 Indian national Science Congress is being organised by the **Indian Science Congress Association** from 3-7 January 2023 at the **Rashtrasant Tukadoji Maharaj Nagpur University**.

The 107 Indian Science Congress 2022 was held at the University of Agricultural Sciences, GKVK Campus, Bangalore, Karnataka in January 2022.

Theme of the 108th Indian Science Congress 2023: Science and Technology for Sustainable Development with Women Empowerment”.

The Congress will hold discussions on issues of sustainable development, women empowerment and the role of science & technology in achieving this. A special programme to showcase the contribution of women in science and technology will also be held, which will also witness lectures by renowned women scientists.

Other Programmes at the ISC

Several other programmes will also be organised alongside ISC. **Children's Science Congress** will also be organised to help stimulate scientific interest and temperament among

children. **Farmer's Science Congress** will provide a platform to improve the bio-economy and attract youth to agriculture.

Tribal Science Congress will also be held, which will also be a platform for scientific display of indigenous ancient knowledge system and practice, along with focusing on the empowerment of tribal women.

Indian Science Congress Association

The Indian Science Congress Association owes its origin to the two British Chemists, Professor J. L. Simonsen and Professor P. S. Mac Mahon. It was set up in **Kolkata** in 1914.

It was their view that scientific research in India would be stimulated if an annual meeting of research workers somewhat on the lines of the British Association for the Advancement of Science could be arranged.

Every year its members meet annually in the first week of January named Indian Science Congress. The first session of the Congress was held in **1914**.